4.—The cell type is uniformly of small variety, more so than is the case in lympho-sarcoma.

5.—It appears from the metastases that these are of nodular type and hæmatogenous origin.

Treatment.—If localized, early excision and if necessary cystectomy following ureteral transplantation. If inoperable x-ray and radium. The resistance of this type of growth to x-ray was very well exemplified. The tumour extended by direct growth out through the suprapubic opening, and a mass 14 x 5 cm. was present on the surface of the abdomen although intensive treatment by x-ray was administered; no apparent diminution in rate of growth was observed.

Munwes showed that in sixty-nine cases, thirty-eight died soon after operation, and only three were considered cured. In Albarran's[9] twenty-six patients thirteen died after operation and ten had rapid recurrences. With these reports at hand, one cannot have any great expectations of a radical cure.

Summary

1.—Primary sarcoma of the bladder is rare; it occurs in 4 to 5 per cent of vesical malignancies.

2.—There are no special clinical signs or symptoms to differentiate it from epithelial growths.

3.—Marked resistance of the growth to x-ray therapy.

4.—It is the most malignant of vesical tumours.

5.—Extensive metastases occur.

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INTRACTABLE SCIATICA—THE SACRAL EPIDURAL INJECTION—AN EFFECTIVE METHOD OF GIVING RELIEF

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WE might appropriately begin this report by defining our terms—sciatica and intractable. The term sciatica, on account of uncertain definition and looseness of description, was the cloak for a multitude of unrelated evils, until a number of years ago Déjerine, followed by Sicard, clearly outlined the condition. After sifting a number of general medical, local surgical and traumatic, as well as the obviously orthopædic conditions associated with more or less atypical sciatic pain, they found there remained a considerable residuum of what they considered typical (sometimes called idiopathic) sciatica, for which no obvious cause could be demonstrated. As a result of their researches they came to the conclusion that they were due to an inflammation of the structures in certain intervertebral foramina. The involvement of the nerve roots passing through these foramina they termed "funiculitis." When the trouble was located in the second, third, fourth and fifth foramina, it gave rise to lumbo-sacral pain, sometimes termed backache or lumbago. When the third, fourth and fifth lumbar and the first and second sacral roots were involved the result was sciatica. Frequently there was a combination of the two.

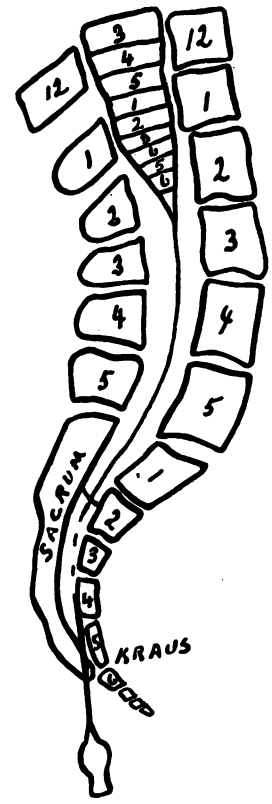
In recent years with the tendency to attribute the causation of so many diseases of ill-defined origin to focal infection "idiopathic" sciatica has been, probably with very good reason, received into this fold. It is not unlikely that a great majority of such cases, syphilis having been excluded, may be attributed to infection

from teeth, tonsils, sinuses or even the gall-bladder. Martyn[1] treating them on this basis claims practically 100 per cent of cures. On the other hand Rosenheck and Finkelstein in a recent communication[2], referring to their previous unsatisfactory experiences with the method described below by the author attribute practically all cases of "idiopathic sciatica" to orthopædic defects, particularly sacro-iliac disease. They follow the theory and practice of Baer and Scofield, and where the cause is demonstrably orthopædic there can be no room for criticism. In the speculative cases, however, their method is not only strenuous but cumbrous and prolonged, and its underlying basis is really a stretching of the nerve. They therefore lay themselves open to their own criticism of the injection method, "since they attack the consequences of the affection and not its origin."

The symptomatology generally agreed upon includes pain in any position, and particularly in changing position; in the lower part of the back and down the back of the thigh, sometimes extending to the malleolus; the characteristic standing position and gait; the tender areas at the point of exit of the nerve from the great sciatic notch, in the back of the thigh, and in the popliteal space; the frequent absence of the Achilles reflex, Lasegue's sign; and another which the author has found to be characteristic of this disease. This consists in placing the patient on his back, raising the affected limb to as near a right angle with the body as possible, then gripping the foot just behind the toes and dorsiflexing it sharply. This almost invariably in sciatica causes a sharp pain at the sciatic notch. This for convenience in reference might be termed the "foot-jerk" sign.

The treatment, obviously, is to remove any possible cause. When this is undiscoverable or irremediable, and when the pain persists, one has a choice of a vast number of procedures of greater or less avail. As these are to be found in any text-book that deals with the subject it will be unnecessary to cumber this report with them.

It is when these methods have failed that we have the so-called intractable sciatica, and here the sacral epidural injection has in most cases a remarkable effect. This method was evolved separately, early in the century by Cathelin[3] and Sicard, and its original application was to curb enuresis, in which it proved of uncertain value. Some years later the method was revived for its present purpose in France and America. The procedure is as follows: The patient is placed in the knee-chest or knee-elbow position. The sacro-coccygeal region is washed with alcohol and then painted with iodine. At its coccygeal junction a small depression between two lateral tubercles is found at the end of the sacrum. Into this depression a preliminary injection of 2-3 cc. of 1 per cent novocaine is made. A large needle of lumbar puncture size is then inserted along its whole length into this depression, the sacral canal, parallel with the sacrum and with a 20 cc. glass syringe that quantity of 1 per cent novocaine is injected. (See illustration). This is followed by the injection of 50-100 cc. of sterile Ringer's solution, or normal saline, or liquid petrolatum, the quantity varying with the size of the patient, his build, the condition treated, and above all on the resistance encountered to the entrance of the fluid. Three or occasionally four of these injections are given at intervals of one week. There is usually a certain degree of improvement with each injection.



There is practically no contra-indication.

Liquid petrolatum is frowned on by some on account of the remote possibility of fatty embolism. In actual use it appears more efficient than the other two, but there is criticism as to its ultimate disposal. If one misses the canal and injects dorsal to the sacrum there is merely an infiltration of the tissues, which neither benefits nor harms. The only risk, and that depends on faulty technique, is in injecting ventral to the sacrum. There important structures may be perforated or penetrated and possibly serious damage done.

The basis of the favourable reaction is not well understood, though different theories have been offered to account for it:—(1) The anæsthetic effect of the novocaine. This is so obviously transitory that it needs but to be mentioned to be dismissed. (2) The tension on the cauda equina, a "nerve pressure," somewhat analagous to nerve stretching. This appears to be reasonable but raises the question, "why are the motor fibres totally unaffected?" (3) A congestion in the neighbourhood of the irritated structures, somewhat analogous to counter-irritation which may stimulate resolution. This for the present seems to be the most acceptable explanation.

We may now proceed to the description of a few illustrative cases of which the author has had several and none of which have failed to be distinctly benefited. It is to be noted generally that the more clear-cut the sciatica, the more effective was the treatment, and where it was combined with other factors, as for example lumbo-sacral pain, the latter was relatively little affected.

Case 1.—F. X. G., thirty-eight years old, has suffered from many complaints and has been operated on several times, but for a few years before onset of present condition has been in good health. In the fall of 1922, while cranking his car he suddenly felt a severe pain down left leg, and had to be taken home in a cab. He remained in bed for a week or ten days during which he was fairly comfortable, but when he got up and tried to resume his occupation things got steadily worse, until he could walk only with difficulty with the aid of a cane, suffering much pain in the process: some days he found it impossible to get up at all. For the next eight months he tried medication, baking, stretching, strapping, posturing, radiant heat and finally chiropraxis, but obtained little relief. Finding all methods unsatisfactory and his means exhausted, he continued to suffer in silence. In November, 1923, the author volunteered to try the epidural method on him. He submitted hopelessly. After a thorough examination which excluded other conditions and established the sciatica, he was given three weekly injections. After the first he said, "Doctor, I feel better but I don't believe it." After the third he said, "I feel almost well and I can't deny it." He has been seen since, occasionally, and reported himself as in very good condition, still conscious of a jar when stepping off a curb, but able to get along very well and quite contented.

Case 2.—H. B., male, forty-seven years. Previous history irrelevant, except for a similar attack of a few weeks' duration about five years before the present one. He was seen in December, 1923, complaining of constant dull ache in right hip and down both legs, particularly in the right. The pain became excruciating when making any sudden movement involving lower part of body. When changing from a recumbent to a sitting or from sedentary to standing position the paroxysms were often intense. With the aid of two sticks he could stand for a few minutes but soon became pale, broke into a cold perspiration, and felt faint from the pain in the lower part of the back. This condition had persisted for two years; for past year he has had to be lifted into and out of his car to get to his office. When there he sits in one chair propped up with pillows and his legs are stretched across another chair. He has been strapped and splinted and bandaged, and has received massage, electrical, and x-ray treatment; has had his right leg (nerve?) stretched. Several suspicious teeth and roots have been removed; he has refused tonsillectomy which was advised. Previous examination which has included almost every part of the body has not indicated any *locus morbi.* The diagnosis given was "sciatica probably due to rheumatoid arthritis."

When seen by the writer, the examination generally was negative. Lumbar puncture disclosed nothing new. Neurological examination showed tenderness at Valleix' points, Lasegue's sign and particularly foot-jerk sign (as above) in both legs, especially in the right. Objec-

tively, there was some diminution to sensation, coton wool and pinprick, over the 5th lumbar distribution in the right leg. The reflexes were normal excepting the right Achilles which was gone; there was no atrophy. The patient was given three treatments, at intervals of a week; during this period he was kept in bed. Within a few hours after the first treatment he could lie or turn in bed with much greater comfort than had been the case for the preceding two years. Three days after the last treatment he was allowed out of bed, and found that he could walk around with the help of his sticks. Within the following week as he began to believe he was well, he walked part of the way to his office with the help of a stick. Six months later he walked as freely as he ever did, with no complaint except a rare kink in the back as he stepped off the curb.

Case 3.—Mrs. W. L. Seen in the Western Hospital in August, 1924. She had been in bed for a year with severe sciatic and lumbo-sacral pain which had not only prevented her from walking during this period, but which gave her pain when she tried to sit up. She had been thoroughly examined and given several varieties of treatment by different physicians, one of whom suspected a tumour of the spinal cord, on account of the presence of a Babinski sign on the right side in addition to her other symptoms. When seen she was a rather stout woman of thirty-five years, in good general condition, who suffered an intense pain when she tried to walk, or to sit up. The pain was of a sharp shooting character that extended all the way down the back of the thigh and leg to the dorsum of the foot. There was slight diminution of sensation to cotton wool and pinprick over the shin and outer side of the foot to the roots of the first and second toes (fifth lumbar distribution). There was also marked tenderness at the point of exit of the sciatic nerve. Lasegue's and the foot-jerk signs (Viner's) were definitely present. The movements of the limb was practically normal, any limitation being due to pain and not to weakness. There was so little if any wasting that it could not be adequately measured. Sense of position of the toes and of the other joints was normal. The reflexes were normal excepting that the knee-jerk in the right limb was all but absent, and the Achilles reflex doubtful. In addition there was a right Babinski which was never accounted for. The blood Wassermann and the spinal fluid were negative, as was the x-ray of the lower spine.

Such was the patient's condition when treatment was instituted. In the course of about eighteen days she was given four epidural injections. At the end of the first one she visited other patients in the ward. At the end of the last she promenaded around the ward, although somewhat limpingly; a day or two later she left the hospital. During the past six months she was seen a few times in a very contented condition, walking about and attending to her housework, and generally well pleased with her present state. The last examination showed that the Babinski which had disappeared after the first or second injection was still absent, the knee-jerk was much more active, the pains had completely disappeared, and the only indications of her previous condition were a barely perceptible limp and an inability to throw a sheet across the bed without a "crick in the back."

The author, impressed by his favourable results with this method in intractable sciatica, decided in extension of this procedure to do some research. He could not see why pain from other conditions involving nerves arising from the same general region of the cauda equina should not be similarly benefited by this method. Therefore in experimenting on cases of pain in the lower segments of the body he has tried coccydynia, cancer of the rectum, lumbo-sacral pain, traumatic neuritis, amputation-stump pain, locomotor ataxia, rheumatoid arthritis, etc. and contemplates trying various other lesions low down in the pelvis, as well as endarteritis, encephalitis (to differentiate between central and peripheral pain) as well as other conditions. So far his results have been rather surprising and, in the main, favourable. However, as this material has no bearing on the present paper, its publication will be left to a later date.

Comment

1.—This method is not a cure-all. Effective though it may be it is not to be run to as a cover for an ineffective diagnosis or a cursory examination.

2.—The injection is not into the cerebrospinal

canal; it is into the vertebral (sacral) canal outside of the cerebrospinal sac.

3.—After the treatment has proved satisfactory the patient must not be finally discharged. The causal condition of the pain may appear later and may require appropriate treatment.

Conclusion

This method is very effective in giving relief in intractable (and ordinary) sciatica. In most cases it restores the patient to his occupation, and in practically all cases speedily gives marked relief from pain.

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AN UNUSUAL CASE OF ANTHRAX IN MAN

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THE lesion of anthrax in its cutaneous manifestations ordinarily presents a distinct and classical picture. Centrally, is the vesico-pustule surrounded by an acute inflammatory hyperæmic zone. By the third or fourth day, a blackish eschar appears centrally, flanked by a vesico-pustular collarette; swelling and infiltration of the invaded tissues is a pronounced characteristic of the ailment. In areas progressing to recovery the gangrenous mass sloughs. In fatal cases, it extends progressively. It will be seen at a glance that Figures I and II do not conform to this description in the skin manifestations.

Case History.—P. A., Winnipeg, a Russian Jew, seen in consultation with Dr. C. J. Bermack, November 3, 1924.

Patient's age, fifty-six. He kept a general store; in addition he bought and sold second hand paper. His supplies were purchased from the leading newspapers of the city and two of the large city hotels. We were unable to trace any infection from these sources, although we assumed his occupation had to do with the affection and that the respiratory tract was the probable portal of entry of the contagion. We were unable to determine directly any infection from the butcher shops, the abattoirs, or tanneries, either in the purchase or in the sale of the paper. We felt, however, that the symptoms suggested a disease transferable from the lower animals to man and considered that clinically glanders corresponded more closely to the published descriptions of the disease from which he suffered than did anthrax.

Mr. A— kept a horse for his deliveries; he cared for the animal himself. In our endeavour to locate the source of the trouble we had Dr. J. B. Still, chief veterinary inspector for Manitoba, test this animal. The beast was pronounced free from either glanders or anthrax. Antedating the present illness the patient suffered from auricular fibrillation with mitral involvement. He had, moreover, an enlarged prostate gland. The urine contained blood, pus, granular and hyaline casts. These complications constituted a serious handicap in combating the disease.

Present Illness.—The patient took ill October 26, 1924. Dr. Bermack was called in attendance and the patient was transferred to St. Boniface Hospital with the diagnosis of left-sided pneumonia. Three days later there was a pseudo-crisis. Twelve hours afterward, however, the right lung became involved, the temperature